

FOSSIL PLANTS FROM MOUNT PIDDINGTON AND CLARENCE SIDING.

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(Plate v; one Text-figure.)

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The specimens described in this communication include a small collection from Mount Piddington, and a single specimen from Clarence Siding. The former were submitted to me by Mr. W. S. Dun, Palaeontologist to the Geological Survey of New South Wales, and the latter was originally brought under my notice by Mr. George W. Card, when he was Curator of the Mining Museum, Sydney. I wish to express my thanks to both these gentlemen for the opportunity of examining the specimens, all of which belong to the collections of the Geological Survey of New South Wales.

Both localities are in the vicinity of Mount Victoria and are near the western edge of the outcrop of the Hawkesbury Sandstone Series. In the Sydney district, in the central part of the basin occupied by the Hawkesbury Sandstone, that Series is approximately 1,000 feet thick, but it becomes thinner towards its western edge, where it is only about 300 feet thick. It is, therefore, a matter of considerable difficulty to compare the horizons on which these fossils occur at Mount Piddington and Clarence Siding with those on which plant fossils are known to occur in other parts of the basin, e.g., at Brookvale, near the coast about three miles north of Port Jackson. The specimens from Mount Piddington are not very well preserved, but it seems worth while recording them in view of our limited knowledge of the fossil flora of the Hawkesbury Sandstone. The specimen from Clarence Siding is different from any that have previously been found in Australian Mesozoic rocks, and it is considered to represent a new genus.

Specimens from Mount Piddington.

CLADOPHLEBIS AUSTRALIS (Morris).

Specimen of part of a fertile frond with broad rachis (4 mm. wide) and portions of three pinnae. The pinnules are about 8 mm. long by 2.5 mm. broad, with a strong midrib and apparently with a row of sori or groups of sporangia on either side of the midrib, the sporangia covering almost the whole of the lamina. The preservation is not good and no details of the sporangia can be made out, but the whole appearance of the specimen suggests that it is identical with those figured as *Cladophlebis australis* from the Ipswich Series at Denmark Hill, Ipswich, Queensland (see Walkom, 1917, Pl. 7, fig. 1, and Pl. 8, fig. 1). The registered number of the specimen in the Geological Survey Collection is F 3022.

THINNFELDIA FEISTMANTELI Johnston.

Specimen F 3105 is a typical example of portion of a frond of *Thinnfeldia Feistmanteli*, a species of common occurrence in Australian Triassic rocks.

Specimen 12485 is a fragment of a *Thinnfeldia*, probably portion of a pinna of *T. Feistmanteli*. It is poorly preserved and shows practically no trace of the venation, but a series of small regularly arranged depressions apparently indicate the positions of sori on the short, broad, bluntly rounded pinnules. This seems to be portion of a specimen similar to that previously figured (Walkom, 1917, p. 18, fig. 5a) from the Ipswich Series of Queensland.

? WILLIAMSONIA sp. (Plate v, figs. 4, 5.)

Specimens have been described from the Narrabeen Series near Sydney (Walkom, 1925, p. 220, Pl. xxix, figs. 7-9) as possible flowers of a species of *Williamsonia*. They showed a series of petaloid bracts borne on a stout peduncle. Some similar examples have been obtained at Mount Piddington. Specimen 12486a (Plate v, fig. 4) resembles figure 9, and specimen 12486b (Plate v, fig. 5) resembles the type illustrated in figure 8 mentioned above. No additional detail of structure is exhibited by these specimens.

PLANTAE INCERTAE SEDIS.

Specimen F 3107 (Plate v, fig. 3) shows some resemblance to Feistmantel's figure (1880, Pl. xiva bis, figs. 1, 1a, 2) of *Phyllothea robusta* from the Gondwana Series of India. Somewhat similar specimens have been described from the Jurassic flora of the Altai Coalfields by Schmalhausen (1879) as *Phyllothea Stschurowskii*, but I have not been able to see figures of the latter. It is not, however, certain that our specimen belongs to *Phyllothea* or even to an allied genus. It may even be that the specimen represents another modification of some of the floral parts of *Williamsonia*. It is figured in order to draw attention to its occurrence in the Hawkesbury Series.

Specimen from Clarence Siding.

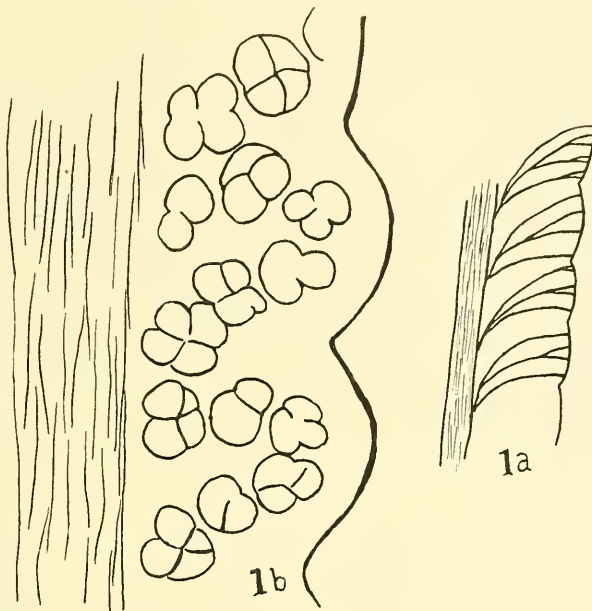
RIENITSIA SPATHULATA, n. gen. et sp. (Plate v, figs. 1, 2; Text-fig. 1).

A specimen from Clarence Siding, N.S.W. (No. 12487 in the collection of the Geological Survey of New South Wales), shows portions of three long, narrow, fertile pinnae of a plant which differs from any fossil genus known to me. The longest pinna is 14.5 cm. and is incomplete; the greater part of it (10.8 cm. long) is fertile, the apical portion being sterile (Pl. v, fig. 2). It varies in width, the fertile part being narrower (8-8.5 mm.) than the sterile portion (9-10 mm.). The midrib is prominent, 2 mm. wide, and finely striated. The margin is slightly lobed; the secondary veins (Text-fig. 1a) in the sterile portion leave the midrib at an acute angle and curve outwards to the margin; they divide usually three times, but to each segment of the lamina there appears to be a single secondary vein which branches twice very close to the midrib, thus giving three main veins to each segment and producing a characteristic venation. In the fertile portion the sori are distributed in groups of 5 or 6 (Text-fig. 1b), each group corresponding to a segment of the lamina; each sorus consists of 3-5, usually 4, sporangia. Occasionally small portions of the sporangial walls are preserved and are seen to be composed of thin-walled elongated cells, but there is not sufficient information available to show whether an annulus was present.

The general shape of the leaf may be compared with several described species, e.g., *Osmunda delawarensis* Berry from the Upper Cretaceous of Delaware (Berry, 1916, Pl. L, figs. 2-4), *Laccopteris* sp., from the Rhaetic of Nurnberg (Gothan, 1914, Pl. 18, fig. 3a), and leaves of *Thaumatopteris Schenki* (Gothan, 1914, Pl. 19,

fig. 3), also from Nurnberg; the characteristic venation agrees with that of the two first mentioned of the above species, whereas the general appearance of the sporangia and their distribution recall some species of *Gleichenites*.

Among Australian Mesozoic plants, perhaps the only ones which may be compared with the present one are those specimens doubtfully referred to



Text-fig. 1.—*Rienitsia spathulata*, n.g. et sp. 1a. Portion of lamina showing characteristic venation. $\times 3$. 1b. Portion of fertile lamina showing arrangement of sporangia. $\times 9$.

Taeniopteris Carruthersi from Cockabutta Mountain (Walkom, 1921, Pl. 3, fig. 3). The beds from which the specimens were obtained at Cockabutta Mountain are believed to belong to the Hawkesbury Sandstone Series.

A very similar type of venation is that exhibited in the short pinnules of *Pecopteris* (*Asterotheca*) *abbreviata* Brong., figured by Zeiller (1886, Pl. xxiv, fig. 1B) from the coal basin of Valenciennes.

It would seem justifiable to refer this specimen to a new genus, but it is not possible at present to suggest to which family it actually belongs. The generic name is in honour of Mr. H. G. Rienits, for many years principal of The School, Mt. Victoria, N.S.W., who collected extensively from the Mount Piddington beds.

Generic characters.

RIENITSIA, n. gen.—Frond pinnate (?). Pinnæ long, narrow, with prominent midrib. Secondary veins leaving midrib at acute angle, curved outward, dividing twice or thrice before reaching the margin. Sporangia grouped in sori, each sorus consisting of 3-5 sporangia; sporangial walls of elongate thin-walled cells, presence of annulus yet indeterminate.

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EXPLANATION OF PLATE V.

- 1, 2.—*Rienitsia spathulata*, n.g. et sp. 1.—Specimen No. 12487, Coll. Geological Survey of N.S.W. × 3. 2.—Portion of pinna showing sterile apical portion and lower fertile portion. Nat. size.
- 3.—? *Phyllothea* cf. *robusta*. Nat. size.
- 4, 5.—? *Williamsonia* sp. flowers. Nat. size.
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